## CLASS OF CYCLIC BASED ESTIMATORS FOR FREQUENCY OFFSET ESTIMATORS 13

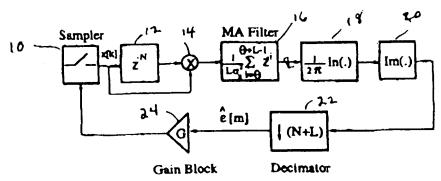
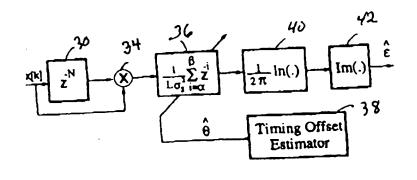


FIG. 1 Closed Loop Offset Estimator

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## CLASS OF CYCLIC BASED ESTIMATORS FOR FREQUENCY OFFSET ESTIMATORS 18



Estimator	α	β
MIL	θ <sub>ML</sub>	0+L-1
MVU	θ	θ'+L-1
Moment	0	N+L-1

FIG. 2. Unified Structure for Class of Cyclic Bases Estimators

## CLASS OF CYCLIC BASED ESTIMATORS FOR FREQUENCY OFFSET ESTIMATORS 20

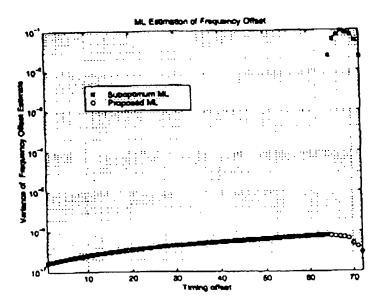


FIG. 3 Comparison Between Proposed and Suboptimum ML Frequency Offset Estimator
CLASS OF CYCLIC BASED ESTIMATORS FOR FREQUENCY OFFSET ESTIMATORS 21

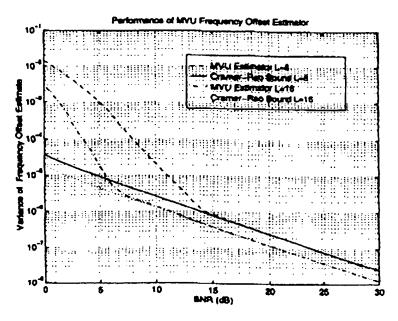


FIG. 4 Performance of MVU Estimator as a Function of SNR

## CLASS OF CYCLIC BASED ESTIMATORS FOR FREQUENCY OFFSET ESTIMATORS 22

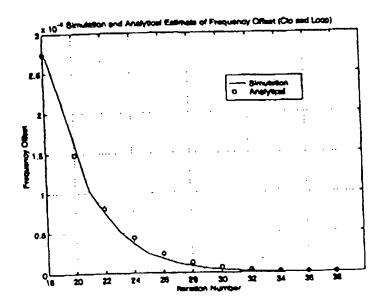


FIG. 5 Closed Loop Performance of MVU estimator